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ABSTRACT

Twenty-eight adult students and four adolescent students were interested in completing computer instruction in keyboarding in their own environment to gain skills and knowledge that would bring them up to date in the information age. The students who enrolled in the keyboarding course were assessed by timed writings, production applications, and personal interviews for grade-level placement. Production assignments were given to students assessed at the advanced level; modeling of function keys and alphanumeric keys and drills were given to students with no previous computer experience. One-on-one instruction was the most common mode of delivery; peer tutoring was next. Students worked at their own pace, since the textbook provided step-by-step instruction. Advanced students were also given the opportunity to complete complex, abstract, and theoretical assignments to achieve advanced level. The students worked in informal groupings that they chose themselves. Community support was evident both among the students and by the friends and relatives who visited the classroom. Students felt ownership in the course by having the opportunity to use computers beyond class hours and to circulate the instructor's computer to their homes for extra practice. Weekly progress reports were issued. (Contains 10 references and 40 endnotes.) (YLB)

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ED 377 305

OUTCOME BASED TEACHING STRATEGIES AND EVALUATION FOR COMPUTER INSTRUCTION IN KEYBOARDING ON AN ABORIGINAL ISLAND RESERVE

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Adult students on an aboriginal island reserve were interested in completing computer instruction in keyboarding in their own environment to gain skills and knowledge which will bring them up-to-date in the information age. Accessing present skills and determining the potential of each student, the facilitator gave good introductory computer skills to 31 students. Some of the more advanced students served as peer tutors, realizing the team player workplace goal. The advanced students were also given the opportunity to complete complex, abstract and theoretical assignments to achieve advanced level. Throughout the course, the support of the community was evident both among the students and by the friends and relatives who visited the classroom intermittently to view the successes. Students felt ownership in the course by having the opportunity to buy the WordPerfect 5.1 textbooks, to use the computers beyond class hours and to circulate the instructor's computer to their homes for extra practice. Flexibility was provided to allow students to choose a higher or lower level course, thus creating the opportunity for all to be successful. Weekly progress reports were issued by the facilitator so each student would understand where they were on the continuum. Collectively, the students worked well with each other to achieve their goals, while the instructor primarily was facilitator. The textbooks were well written to provide step-by-step instruction, thus enabling students to work at their own pace. The overall effect of this outcome based approach are discussed.

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INTRODUCTION

A survey which I conducted for Adult students on the Island Native Reserve showed the need for literacy training which was addressed by the County School Board with courses in Grade 11 English and Mathematics. During the school year, Grade 12 English and Mathematics were offered through the Independent Learning Centre with tutor/markers meeting students once a week. The students who completed either a half course or a full course in Mathematics, did so during the fall, but in the winter, travelling to the island over the ice by scoot--a plane/boat and snowmobile--was difficult, and I found travelling across the ice by car treacherous. When daily instruction was not available, students lost interest.

However, in the spring, a student leader called to say that she had composed a letter to the Educational Council of the Band and had gathered a list of students interested in taking Keyboarding classes at Summer School, if this was possible. To show further interest, all students filled out formal applications and submitted them to the County School Board. The Principal of Adult Summer School agreed to offer the course if it had sufficient enrollment. Thirty-one students completed the course and I now present the teaching strategies, evaluation of student achievement with the outcomes-based education philosophy and practice.

Native students value systems of harmony. Close knit family life and a strong sense of community makes them natural candidates for outcome-based education. Native adult students view the need for technological training as very important, and Spady agrees: "The guiding vision of the graduate is that of competent future citizen. When viewed from this future-oriented, life-role perspective, success in school is of limited benefit unless students are equipped to transfer that success in life in a complex, challenging, high-tech future".[1] Native adult students wish to be able to communicate in workplace business language and to use up-to-date technology. They are well aware that they will be more able to improve their lives by completing their education which was interrupted earlier. The students are very capable of learning and have "high expectations ..to do significant things at the end"[2] and therefore need to be given every opportunity to maximize their potential.

"Outcome-based education focuses on outputs rather than inputs"[3] . At the onset I decided that all students would be successful and asked them to let the course unfold, by not becoming discouraged at the beginning complexity of the software and hardware or by an unrealistic timings goals, but to excel in all the areas of the course that they could easily accomplish in the one-month course. I provided course outlines, and handout sheets of assignments with prescribed dates. I offered all the types of assistance that was required. Very early, the students accepted my role as the "guide on the side" and not "the sage on the stage"[4]

My challenge was "extensive experience with behavioural objectives, learning outcomes, criterion-referenced measurement, mastery learning and competency-based education--a strong base on which to build."[5] Vickery (1990) discusses administrative support: "This process should recognize that people change at different rates and that it is not necessary for everyone to change in the same way or at the same time".[6]

I view my role coach/facilitator in a curriculum-driven course in which I used outcome-based learning/teaching strategies and evaluation/assessment practices. I considered each student in terms of his/her potential, I determined where each student was beginning, I exercised the right strategies to deliver the course and was able to bring about 31 successful culminating "outcomes", and was able to describe the strategies according to the research plan for the Ontario Secondary School Teachers' Federation grant, which I was awarded to conduct the research. Now the students want another course as soon as possible, because they continue to see the need to have "building blocks leading to the ultimate culminating demonstrations."[7]

METHOD

Twenty-eight adult students and 4 adolescent students (with special permission), who enrolled in Keyboarding Grades 9, 10, 11 and 12 using IBM Compatible hardware and WordPerfect 5.1 software. The 110 hour Keyboarding course curriculum was offered by the County School Board, with which the band has a tuition agreement. I was hired as the Summer School teacher for Keyboarding.

The students were assessed by timed writings, production applications and personal interviews for Grade Level placement. Rubin and Spady (1984) regard this placement "The term outcome-based refers to a variety of instructional systems in which the specific learning achievement of students govern their placement and movement through the curriculum. In such programs, students are flexibly grouped according to the specific levels of achievement and curriculum challenge they have the prerequisite to handle".[8] Thus, production assignments were given to students who were assessed at the advanced level and modelling of function keys, and alphanumeric keys and drills to consolidate keyboard skill were given to students who had no previous computer experience. Handout sheets for function keys were provided. Instruction on theory of letters and reports was given. Disks were provided. Textbooks were purchased by the students. The Ontario Ministry of Education Guidelines were followed.

One-on-one instruction was most often the mode of delivery and peer tutoring was next. Students were to work at their own pace, as the textbook provided step-by-step instruction. Friedland

(1992) states "OBE varies the learning time allotments so the slower learner gets the time needed to master the content at desired levels. With more frequent success, their rate of learning accelerates and they become faster learners, more consistent achievers and have better self-esteem in general".[9] Hence, I composed assignments with deadlines. Also, confluent education was used: "A confluent lesson plan takes the desired cognitive goals of that lesson and intertwines them with the feeling-level or affective components of that particular subject matter so as to induce feeling level responses by students as part of that class session..Adding affective components to each and every class session provides a vital involvement linkage that stimulates students to invest their feelings in the subject matter and to have greater ownership of it."[10]

"At all times, students should know what the goals of their learning experiences are, what criteria will be used to assess their performance on those goals and where they stand in relation to each of those goals."[11] Evaluation was technique grading,attendance, assignments, tests, timed writings and work habits. Weekly progress reports were issued. "This focus on outcomes calls for a different approach to pedagogy (androgeny), with emphasis on diagnostic assessment and frequent feedback to students about their performance."[12] Telephone calls on-site kept me in touch with absentees, who were working or caring for children and thus maintained students. "Invitational education is a blueprint for creating a positive and dynamic climate based on trust, respect

intentionality and optimism, (TRIO)".[13] I utilized TRIO.

The students worked in informal groups for "greater learning involvement of students, more learning time on task, higher achievement, more positive social interaction and better rapport"[14] and had the opportunity to do extra practice in the classroom daily or on my computer which was circulating throughout the community "expanded opportunity".[15] Any student who wished to change groups could do so with my permission. The "flexible and continuous reorganization of instructional groups" [16] was for more success.

"The variability in student achievement and aptitude"[17] which students had in typewriting was tested in the timed writings, which were given at regular intervals. Timings were not stressed as the end goal, in this month long course, but instead--accuracy, good productions, knowledge of the software and hardware, and applications to business with good problem solving techniques. Redding (1990) addresses this concept with the question "What student products or performances are acceptable demonstrations of their knowledge of the subject?".[18]

Advanced students accomplished assignments which were complex, abstract and theoretical. Meaningful assignments such as the composition of invoices for textbooks, advertisements for local businesses and real-time projects were used. Spady gives priority to "higher level competencies such as technological applications and complex problem solving".[19] The advanced students completed real time assignments for community members and this "more active student involvement in interesting tasks

results in improved learning".[20] Redding (1990) agrees that "students are engaged in their own learning because the tasks they are given are meaningful. Knowing the crieteria up front, they take responsibility for becoming prepared and use their teacher as resource and coach."[21]

Community support was used to give encouragement to the students in the class. The interest in the course by all people including students was encouraged by me as a motivator. Classroom visitors were welcomed. People stopped by for brief informal visits to class to see their family members. And the students who had supportive families were more dedicated than those who were working "solo". Students themselves also provided the momentum to complete the course in the required month. "Transitional OBE staff and community members almost universally emphasize broad attitudinal, affective, motivational and relational qualities or orientations".[22]

OBSERVATIONS (by the teacher)

Introduction

The students in the summer school were adult band members, on an Island native reserve, who chose to attend Summer School Keyboarding classes at the Grade 9, 10, 11 and 12 Levels, for 110 hours in 20 days.

Because the students were given the opportunity to purchase the course textbook, this enhanced their pride and ownership in the course. Friedland (1992) regards ownership as "Teachers, administrators, parents and students all must have some real ownership of that mission statement for it to have the best chance of attainment". [23] Owning the textbook seemed to be as close as the class could be to a mission statement--and the book became a symbol of accomplishment throughout the course.

On the first day, the students were apprehensive about the assessment, which placed them in 3 categories "to accommodate variability in student achievement and aptitude" [24] --the students who had no experience, students whose skills had decreased without recent application, and students who had good skills and self-confidence.

Three groups of adult students were evaluated diagnostically by scores in timed writings (skills)and pretests in production exercises (application of concepts). The students in each of the three groups formed working subgroups with students of their choice. This was satisfactory because the degree of cooperation among the group members enhanced daily performance, with "greater

learning involvement and more learning time on task". [28] It was also obvious that the students who did not work in groups had less productivity and self-confidence.

Group 1

Group 1 had no background in computer training and the subgroups consisted primarily of family members in the native community: 2 husbands and wives, 2 sisters, a mother and daughter, 2 brothers and sisters and others. The close relationship between family members created a harmonious atmosphere in which learning was facilitated. Differences in this group included: 1 adolescent student who was repeating the Grade 9 Course, and 2 adults who were given the opportunity to drop back to the Grade 9 Course, due to timed writing scores, within the mandate of the summer school, since the isolated Island population did not consist of only one grade level of students.

Group 2

Group 2 consisted of 2 students who worked alone, 1 adolescent Grade 10 student who considered himself competing with his father who was a beginner, 1 adolescent with excellent skills and who may have been capable of advanced work, but I did not want to interrupt the sequence of high school courses. Also in Group 2 was an outstanding student who surpassed the others in productivity, performance and problem solving skills, although he had no previous computer experience. As well, 2 students, who began in Group 2, chose to complete Group 1 work, to reinforce self-confidence.

The instructor allowed for freedom to chose the comfort level of achievement, and hence all students were retained in the summer programme. Rubin and Spady (1984) described aspects similar to Group 2 as "individualized and learner responsive instructional system" [26] and use it to explain outcome-based instructional delivery. Also, Fitzpatrick (1991) believes students should "attain communication and group-interaction skills".[27] Hence, my role of facilitator/coach was "stretched" by having 4 grade levels operating in 2 rooms, and a teacher aide would have been very useful in facilitating the course.

Group 3

Students in Group 3 were those with previous computer experience and advanced skills. These students had excellent timed writings scores, some had work experience on computers, and some had taken computer courses in private schools.

Group 3 consisted of 8 students--4 who completed the General Level assignments, and 4 who accomplished additional assignments which qualified them for Advanced Level credits. Group 3 students did not exhibit the level of dedication shown by the beginners. However, they ultimately experienced pride of accomplishment when offered the opportunity to do additional advanced assignments for Advanced Level credits. Learning a new skill and doing well has a higher learning curve than learning a skill with experience. These students also were of great benefit to their classmates who asked for assistance. Native peer tutoring or native teacher aid assistance was an obvious requirement for the successful delivery

of the course. I feel that the cultural needs of the students are addressed with a native in a leadership role. I compensated for this requirement by working extra hours (about 7.5) each day to fullfill the needs of the students. Also, the elementary school on the Island had a native teacher aid in every classroom and this system is very effective in bridging cultural differences.

Among the summer school adult class were 4 adolescent students who were currently enrolled in local secondary schools. One completed work at the Grade 9 level, 2 completed Grade 10 credits and one completed Grade 12.

The adolescents were faster readers and had more recent training in computer skills but they were considerably less diligent in work habits than their adult counterparts. I was constantly altering my approach for adolescent needs, and they did respond with effort, and therefore achieved successful outcomes.

Homework Consideration ("Expanding Opportunities")

Adult students with very young children were given the opportunity to work on my computer which was delivered house to house by students, so assignments and course content could be completed. This method worked satisfactorily for students who already had excellent skills, and also was encouraging for those who required remedial work, near the end of the course "Expanding opportunities for success--the opportunity for students to receive remediation or extra assistance when necessary." [28]

Actually, my computer returned in good condition as students appreciated the trust I had given them by loaning it.

Student Comments and Attitudes

The course became well-known in the island community and interaction between all families and friends was obviously part of their daily experience.

Students were very interested in the course, and students showed dedication and skill development beyond what they expected, as they showed surprise at rapid speed development. Redding (1990) explains that "more active student involvement in interesting tasks results in improved learning".[29] Also, because clarity of "goals of learning experiences"[30] is important, I encouraged students primarily to develop keyboarding accuracy; and skills and knowledge of WordPerfect 5.1 whereas high timings scores in a summer course were variable according to experience.

Students worked diligently to complete the assignments and those who had higher level skills accepted more challenging work.

Generally, comments were not as evident as attitudes--many students wished to stay at the computers for extra time each day and the instructor permitted students the extra time "more, longer, harder" versus "different, smarter, better"[31] since all members of the band were observing these adult students as role models. Also, many adolescents were watching their parents succeed, and a mother indicated that their children had voluntarily accepted household responsibilities to help with mother'ssuccess in the course. There were a few children who visited the classroom from time to time to see the parents work and some offered assistance and demonstrated skills to the parents creating "more positive social interaction

and better rapport between students and better attitude toward teachers, students and schoolwork".[32] There were only positive attitudes by onlookers and family members, and the children who came to see the parents in school received a positive effect on their attitude. **Children coming to Parents' Night.**

On the following page is a profile of the students in the Summer School Keyboarding course.

Specific Characteristics of Adult Learners

1. Student came to build houses but instead enrolled in school
2. Student found the WordPerfect 5.1 Program very difficult
3. Community College student wanted to improve skills
4. Local school employee wished to have the high school credit
5. Mother of 4 wished current technology and will continue
6. Adult high school student improved technical reading
7. Student dropout as an adolescent will return to high school
8. Unemployed wordprocessor now has high school advanced credit
9. Disabled adult student is now proud of new skills
10. Part-time employee interested in desktop publishing
11. OSSD soon to be complete--adult maturity credits
12. Student prepared resume--will continue for OSSD
13. Community College student wanted to improve skills
14. Band employee had computer put on office desk
15. Band member will input into future educational trends
16. Band member will be addiction counsellor
17. Mother of preschool children improves technical skills
18. Island clergyperson masters advanced level
19. Inspired student to continue studies for OSSD
20. Mother of 6 back in school--family accepted duties
22. Mother of 5 soon to have OSSD with maturity credits
23. Class leader responsible for enrolling everyone
24. Part-time employee update technical skills
25. Part-time employee masters technical reading
26. Full-time employee works on course after hours
27. Part-time employee masters advanced concepts

28.- 31. High School students--special permission

TABLES

Table 1. Student Enrollment Grade, Level, Number, Gender

Grade	Level	Number	Male	Female
Grade 9	General	3	2	1
Grade 10	General	2	1	1
Grade 11	General	17	7	10
Grade 11	Advanced	1	1	0
Grade 12	General	4	0	4
Grade 12	Advanced	4	1	3
	Totals	31	12	19

Table 2. Keyboarding Skill Groups and Outcomes

Background	Group 1	Group 2	Group 3
Computer Courses	2	2	8
Typewriting Courses	11	2	1
Other Courses	1	0	3
Outcome & Relationships			
High Achievement	12	1	6
Timings Scores	10	1	6
Move Lower Level	2	2	0
Move Higher Level	1	0	4

Table 1 indicates that 31 students completed the Keyboarding courses.

Table 2 indicated specific achievement outcomes.

There was correlation between Group 1 students with previous typewriting courses as adolescents, and their present scores in achievement and timings as adults.

Group 2 students were fewer in number, 2 moved to Group 1 and one of the remaining 2 had high achievement.

Group 3 results indicate that more background courses, more computer courses and high timings scores, prior to the summer course, have correlation with achievement at the general level and movement to the advanced level.

DISCUSSION (of the teacher--not data-based)

Adult students are highly motivated for learning when they are ready and in an area of study in which they have a high interest. The students in the study had excellent background and proficiency for Keyboarding.

The informal groupings which the students themselves chose was effective for the time frame of summer school. The students who worked independently moved to a lower course level, if they were in Group 1 or Group 2 and had fewer background courses. Also, students had the option of choosing a lower course to reinforce self-confidence and skill. Students in Group 3 moved to the advanced level by accomplishing assignments which were more complex, abstract and theoretical. Rubin and Spady (1984) in "Achieving Excellence Through Outcome-Based Instructional Delivery" describe "specific learning achievements of students which govern their placement and movement through the curriculum. In such programs, students are flexibly grouped according to specific levels of achievement and curriculum challenge they have the prerequisites to handle."[33]

Instruction time for 4 Grade Levels in one month was challenging--Peer tutoring was effective for Group 3 students with each other and with students in Groups 1 and 2. The more proficient students in Group 1 effectively tutored their classmates. Hence the role of the instructor shifted focus, from "the sage on the stage, to the guide on the side that complements students' progress and development as learners",[34] as described by

Fitzpatrick (1991). The students had purchased the textbook for the course to be congruent with their desire to succeed, a concept described by Friedland (1992) referring to students having some real ownership to have the best chance of attainment. [35] The textbook contained detailed, step by step instructions, permitting students to work independently at their own pace.

Brandt (1993) interviewed Spady about "expanded opportunity meaning expanding the ways and the number of times (kids/students) get a chance to learn."[36] In this course, I provided extra practice by additional classroom hours and by having my computer in circulation throughout the community for students with child care problems, and for students in Group 1 whose speed had impeded them from completing assignments during the class hours. Opportunities such as this, enabled 5 more students to complete the course who might otherwise have dropped out. However, Spady (1988) looks at this practice as an Industrial Age concept "more, longer, harder"; and the Information Age idea is "different, smarter and better".[37]

There was Community support for this summer course. Hence, the participants were encouraged and their self-confidence was raised. Spady (1991) confirms that "Transitional OBE staff and community members almost universally emphasize broad attitudinal, affective, motivational and relational qualities or orientations."[38] Also, my weekly progress reports served as "checkpoints along the way".[39] Students were treated as individuals and were expected to reach "high expectations".[40]

CONCLUSION

Outcomes-based education described in this study produced:

-intensive engagement/ownership

-improved self-confidence of students

-collaborative learning

-supportive home/community environment

-climate of trust/respect

-increased personal responsibility of students

-flexibility of instruction/expanding opportunities

-essential learning components/hierarchical

-technological knowledge and skills

ENDNOTES

[1] Spady, William G. and Marshall, Kit J. "Beyond Traditional Outcome-Based Education", Educational Leadership, October, 1991, p.70.

[2] Brandt, Ron "On Outcome-Based Education: A Conversation with Bill Spady, Educational Leadership, December 1992/January 1993, p. 88.

[3] Nyland, Larry :One District's Journey to Success with Outcome-Based Education", The School Administrator, November 1991, p. 31.

[4] Fitzpatrick, Kathleen A. "Restructuring to Achieve Outcomes of Significance for All Students", Educational Leadership, May 1991, p. 20.

[5] King, Jean A. and Evans, Karen M. "Can We Achieve Outcome-Based Education?", Educational Leadership, October 1991, p. 74.

[6] Vickery, Tom Rusk "ODDM: A Workable Model for Total School Improvement", Educational Leadership, April 1990, p. 69.

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[8] Rubin, Steven E. and Spady, William G. "Achieving Excellence Through Outcome-Based Instructional Delivery", Educational Leadership, May 1984, p. 38.

[9] Friedland, Stan "Building Student Self-Esteem for School Improvement", NASSP Bulletin, January 1992, p. 99.

[10] ibid., p. 100.

[11] Spady, William G. "Organizing for Results: The Basis of Authentic Restructuring and Reform", Educational Leadership, October 1988, p. 7.

[12] ibid., p. 5.

[13] Friedland, Stan "Building Student Self-Esteem for School Improvement". NASSP Bulletin, January 1992, p. 101.

[14] ibid., p. 99.

[15] Brandt, Ron "On Outcome-Based Education: A Conversation with Bill Spacy, Educational Leadership, December 1992/January 1993, p. 88.

[16] Rubin, Steven E. and Spady, William G. "Achieving Excellence Through Outcome-Based Instructional Delivery", Educational Leadership, May 1984, p. 39.

[17] ibid., p. 37.

[18] Redding, Nora "Assessing the Big Outcomes", Educational Leadership, May 1990, p. 52.

[19] Spady, William G. and Marshall, Kit J. "Beyond Traditional Outcome-Based Education", Educational Leadership, October 1991, p. 69.

[20] Redding, Nora "Assessing the Big Outcomes", Educational Leadership, May 1990, p. 53.

[21] ibid., p. 53.

[22] Spady, William G. and Marshall, Kit J. "Beyond Traditional Outcome-Based Edication", Educational Leadership, October 1991, p. 69.

[23] Friedland, Stan "Building Student Self-Esteem for School Improvement", NASSP Bulletin, January 1992, p. 99.

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[27] Fitzpatrick, Kathleen A. "Restructuring to Achieve Outcomes of Significance for All Students", Educational Leadership, May 1991, p. 18.

[28] ibid., p. 20.

[29] Redding, Nora "Assessing the Big Outcomes", Educational Leadership, May 1990, p. 53.

[30] Spady, William G. "Organizing for Results: The Basis of Authentic Restructuring and Reform", Educational Leadership, October 1988, p. 7.

[31] Spady, William G. and Marshall, Kit J. "Beyond Traditional Outcome-Based Education", Educational Leadership, October 1991, p. 67.

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[38] ibid., p. 69.

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